

Microdipodops pallidus. By Michael J. O'Farrell and Andrew R. Blaustein.

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Microdipodops pallidus Merriam, 1901
Pale Kangaroo Mouse

Microdipodops pallidus Merriam, 1901:127. Type locality Mountain Well, Churchill Co., Nevada.

CONTEXT AND CONTENT. Order Rodentia, Suborder Myomorpha, Family Heteromyidae, Subfamily Perognathinae. Four subspecies are recognized (Hall and Kelson, 1959) as follows:

M. p. ammophilus Hall, 1941a:273. Type locality Able Spring, 12½ mi. S Lock's Ranch, Railroad Valley, 5000 ft., Nye Co., Nevada.

M. p. pallidus Merriam, 1901:127, see above.

M. p. purus Hall, 1941a:273. Type locality 14½ mi. S Groom Baldy, Lincoln Co., Nevada.

M. p. ruficollaris Hall, 1941b:60. Type locality 5 mi. SE Kawich P. O., 5400 ft., Kawich Valley, Nye Co., Nevada.

DIAGNOSIS. The pale kangaroo mouse is pale pinkish cinnamon above with the hair of underparts white to the base, whereas *M. megacephalus* is brownish, blackish, or grayish above with underparts basally plumbeous and white-tipped. The upper parts of the tail are approximately the same color as upper body parts and lacking a black tip. The hind foot is slightly larger than that of *M. megacephalus* (greater than 25 mm rather than 23 to 25 mm). The anterior palatine foramina are parallel-sided. The premaxillae extend well behind the nasals.

GENERAL CHARACTERS. Measurements (in millimeters) are: total length, 150 to 173; length of tail, 74 to 99; length of hind foot, 25 to 27. Weight varies from 10.3 to 16.8 g. The tail is wider near the center than at either end. More detailed descriptions are presented by Hall (1946) and Hall and Kelson (1959). The skull is illustrated in Figure 1.

DISTRIBUTION. The geographical range is shown in Figure 2. *Microdipodops pallidus* is associated with Upper Sonoran sagebrush desert and occurs in central Nevada and a small portion of eastern California (Hall and Kelson, 1959).

There are no accounts of fossil evidence for this species.

FORM AND FUNCTION. A comprehensive study by Hatt (1932) of the vertebral columns of ricochetal rodents gave information on the skeletal structures of *M. pallidus*.



FIGURE 1. Photograph in ventral view of a skull of *Microdipodops pallidus*. Specimen (no. 273) on deposit in the museum of the Department of Biology, University of Nevada, Reno. See also Figure 1 in the account of *Microdipodops megacephalus* (O'Farrell and Blaustein, 1974).

Some of this is summarized in our account on *M. megacephalus* (O'Farrell and Blaustein, 1974).

Microdipodops pallidus has extremely large sebaceous glands, small mucous glands, and no sudoriferous glands in the oral lips and angle (Quay, 1965). Hall (1946) noted a swelling in the proximal third or half of the tail.

Bartholomew and MacMillen (1961) found these mice capable of both hibernation and estivation and determined that they showed no clearly defined zone of thermoneutrality, had a high critical temperature, and a tendency to hyperthermia at high temperatures rather than evaporative cooling. Brown and Bartholomew (1969) reported that a low ambient temperature and reduced food supply induced torpor. They further found that periods of torpor were regulated in such a way that body weight was maintained while seed stores were conserved during both chronic and acute food shortages.

ECOLOGY. Hall (1946) summarized the existing information on reproduction. He found pregnant individuals from 29 March to 22 September. Litter size ranged from two to six with a mean of 3.9.

The habitat of *M. pallidus* lies exclusively in the Upper Sonoran Life-zone (Hall, 1946). Edaphic features controlling the distribution of this species have been discussed by Hall (1946) and Ghiselin (1970). Hall found *M. pallidus* restricted to fine, wind-blown sand whereas Ghiselin found a random distribution either on fine sand or gravelly soil where it was sympatric with *M. megacephalus*. *Dipodomys deserti* and *D.*

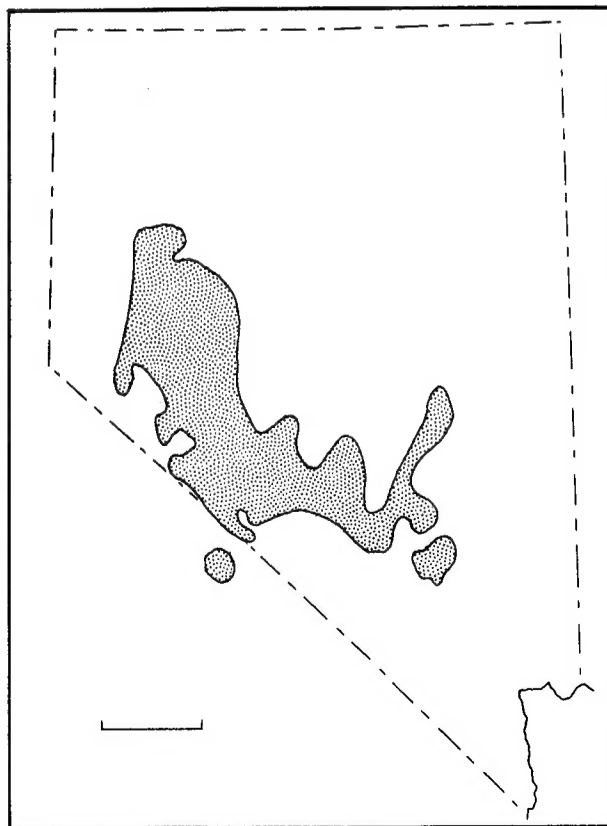


FIGURE 2. Geographic distribution of *Microdipodops pallidus* in the state of Nevada and adjacent part of California. The scale at the lower left represents 100 km.

merriami are commonly found in conjunction with *M. pallidus* (Hall, 1946). Ghiselin (1969) reported on the movements of this species and gave maximum distance between captures of 240 m for males and 136 m for females. Hall (1946) described this species as being primarily granivorous with insects supplementing this diet to a considerable extent. Free water does not seem to be utilized.

BEHAVIOR. Relatively little is known concerning the behavior of *M. pallidus*. The following summary is from Eisenberg (1963). This species utilizes a quadrupedal ricochet as its predominant form of locomotion. A bipedal ricochet is sometimes used. Although other members of the subfamily are efficient climbers, *M. pallidus* does not climb. The burrows of this species are short and simple and are in or near wind-blown sand. Nest chambers within the burrows have not been found and there is little tendency to build a nest in captivity. This species is relatively nonaggressive when compared with other heteromyids. When attacked by another species, *M. pallidus* emits a scratchy, high pitched growl. Intraspecifically, however, this species is somewhat aggressive.

A burst of activity just after sunset and some activity through the night was reported by Hall and Linsdale (1929). Winter activity was found by Hall (1946) and Bartholomew and MacMillen (1961). Brown and Bartholomew (1969) found similar activity but noted that if the soil became damp and then froze, no activity occurred.

GENETICS. The following karyotypic information was kindly provided from unpublished data by Dr. James L. Patton. A male and female *M. pallidus*, collected 15 mi. N Groom Baldy, Lincoln Co., Nevada, were examined. The X chromosome was a medium acrocentric and the Y chromosome was a small subtelocentric ($2N=42$, $FN=80$). The autosomes were 16 pairs of metacentrics and submetacentrics, and four pairs of subtelocentrics.

Hall (1946) presented evidence that hybridization occurs between *M. pallidus* and *M. megacephalus* in Penoyer Valley, N of Groom Baldy, Lincoln Co., Nevada.

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Primary editor of this account was S. ANDERSON.

M. J. O'FARRELL, DEPARTMENT OF BIOLOGY, UNIVERSITY OF NEVADA, RENO, 89507 (PRESENT ADDRESS: SAVANNAH RIVER ECOLOGY LAB., DRAWER E, AIKEN, SOUTH CAROLINA 29801), AND A. R. BLAUSTEIN, DEPARTMENT OF BIOLOGY, UNIVERSITY OF NEVADA, RENO, 89507 (PRESENT ADDRESS: DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CALIFORNIA, SANTA BARBARA, 93106).